

REMARKS

Responsive to the Office Action mailed on October 12, 2007 in the above-referenced application, Applicant respectfully requests amendment of the above-identified application in the manner identified above and that the patent be granted in view of the arguments presented. No new matter has been added by this amendment.

Present Status of Application

Claims 1-6 are pending in this application. Claims 5 and 6 are objected to under 37 CFR 1.75(c), as being in improper form because they are multiple dependent claims depending on multiple depending claims. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gozzi et al (6,254,468, hereinafter "Gozzi") in view of Wiseman et al (2,789,352, hereinafter "Wiseman").

In this paper, claims 5 and 6 are amended to depend from claim 1. Thus, amended claims 5 and 6 are presented in a single dependent claim format. Applicant respectfully requests that the objection to claims 5 and 6 be withdrawn and the claims examined.

Reconsideration of this application is respectfully requested in light of the amendments and the remarks contained below.

Rejections Under 35 U.S.C. 103(a)

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gozzi in view of Wiseman. Applicant respectfully traverses the rejections for the reasons as follow.

Claim 1

Claim 1 recites a prophylactic chip, mounted on the top of a dental rotary instrument for cleaning, polishing, and burnishing teeth, comprising:

a hollow cup-shaped core with canopy (semispherical), cylindrical, cupped, conical, inverted conical, or disk profile;

a shaft containing a connecting means for connecting the prophy chip to the dental rotary instrument to avoid vibration around the rotation axis of the core during rotation;

a hydrophilic grindstone sponge covering the core, wherein the hydrophilic grindstone sponge comprises a grindstone therein; and

a shank-equipped or undulated latch plate fixing the hydrophilic grindstone sponge by folding the edge thereof into the interior or the bottom of the core, or for gripping;

wherein the hydrophilic grindstone sponge is immersed in water prior to operation or absorbed saliva during operation without using a polishing paste to dissipate heat generated by friction.

In the rejection of claim 1, the Examiner identifies spindle 2, carrier layer 3, and abrasive layer 4 as the alleged shaft, core and hydrophilic grindstone sponge of the claims. The Examiner further relies on Wiseman to teach that the core is hollow. See pages 2-3 of the office action. In particular, the Examiner's *prima facie* case of obviousness is based on interpreting the claim term "hydrophilic grindstone sponge" to cover the non-porous, abrasive studded rubber layer 4 of Gozzi. For the reasons described below, Applicant submits that this interpretation is untenable.

Gozzi teaches a dental tool 1 having a spindle 2 allowing its connection to the hand piece of a dental apparatus. Spindle 2 is provided with a carrier layer 3 on which an abrasive layer 4 is applied. See column 2, lines 33-40 of Gozzi. Wiseman, on the other hand, teaches a tooth polishing cup with a reservoir 18 for holding tooth polishing material 19. See column 3, lines 9-10 of Wiseman.

Neither Gozzi nor Wiseman teach or suggest a hydrophilic grindstone sponge covering a core. To the contrary, Gozzi teaches a conventional abrasive layer comprising abrasive grains embedded in a rubber-elastic mass. In this regard, Applicant submits that a rubber-elastic mass differs from a hydrophilic sponge in both structure and properties.

In particular, Gozzi's abrasive layer 4 is formed by injection molding and molding press, and the elasticity of the rubber-elastic material is relied upon to control the abrasive/polishing effect of the device. See col. 2, lines 43-51 and col. 3, lines 1-8, of Gozzi. Gozzi's device implements conventional dental cleaning techniques in which a polishing gel or paste is used for preventing or mitigating the generation of heat due to the friction of the dental tool on the tooth.

On the other hand, the present invention employs a hydrophilic sponge. Unlike the rubber-elastic mass of Gozzi, a hydrophilic sponge is a porous material that can retain or store of liquid (e.g., water or saliva). Thus, the cleaning, polishing, and burnishing with the hydrophilic sponge of the invention uses water absorbed therein to provide more effective dissipation of heat generated by friction. See page 2, lines 27-29 of the specification. Moreover, compared to the sponge recited in claim 1, Gozzi's rubber-elastic mass lacks the pliability to cover a complex profile suitable shape for the proximal surfaces or teeth fissures.

Applicant further submits that whether taken alone or in combination, Gozzi and Wiseman fail to teach or suggest "a shank-equipped or undulated latch plate fixing the hydrophilic grindstone sponge by folding the edge thereof into the interior or the bottom of the core, or for gripping," as recited in claim 1. To the contrary, Gozzi discloses that the carrier layer 3 is first applied by injection molding onto the spindle, and, in a second step, the thinner abrasive layer 4 is applied, e.g. by means of a molding press. See column 2, lines 52-56 of Gozzi.

It is therefore Applicant's belief that even when taken in combination, the prior art references relied upon by the Examiner do not teach or suggest all the limitations of claim 1. For at least this reason, a *prima facie* case of obviousness cannot be established in connection with this claim.

Claim 3

Claim 3 recites that the hydrophilic sponge further comprises at least one water soluble agent consisting of a foaming agent, a sweetener, a fragrance, a medicament for inhibiting or preventing periodontal diseases or dental caries, or a coating agent. Thus, the water soluble

agent can be dissolved and released to the surface of teeth or the entire oral cavity by water or saliva during the polishing operation. See page 3, lines 23-29 of the specification.

Applicant respectfully submits that whether taken alone or in combination, Gozzi and Wiseman fail to teach or suggest a hydrophilic sponge comprising water soluble agents. Gozzi discloses an abrasive layer comprising abrasive grains (for example, diamond grains) embedded in a rubber-elastic mass to a carrier layer. There is no teaching or suggest that the abrasive layer comprises water soluble agents. The same applies to the rubber element disclosed by Wiseman.

It is therefore Applicant's belief that even when taken in combination, the prior art references relied upon by the Examiner do not teach or suggest all the limitations of claim 3. For at least this reason, a *prima facie* case of obviousness cannot be established in connection with this claim.

Claim 4

Claim 4 recites that the core is reticular or porous and at least one water soluble agent consisting of a foaming agent, a sweetener, a fragrance, a medicament for inhibiting or preventing periodontal diseases or dental caries, or a coating agent is disposed in the hollow portion of the core, or the core is filled with a water-retaining sponge immersed in the water soluble agent, wherein the water soluble agent is releasable from the surface of the hydrophilic grindstone sponge covering the core.

Applicant respectfully submits that neither Gozzi nor Wiseman teach or suggest a reticular or porous core. In Gozzi, the alleged core is solid rubber. Wiseman, on the other hand, discloses a reservoir formed in a solid rubber element for holding the tooth polishing material, wherein the material is pushed inwardly over the lower surface 14 of the rib and then gradually onto the outer surface 13 of the rib and finally onto the ridged inner surface of the lip 9. Accordingly, the reservoir 18 of Wiseman is neither reticular nor porous. In addition, neither reference teaches or suggests a sponge covering the core, or that a water soluble agent stored in the core is releasable from the surface of said sponge.

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Examiner: Mai, Hao D, Art Unit 1744
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It is therefore Applicant's belief that even when taken in combination, the prior art references relied upon by the Examiner do not teach or suggest all the limitations of claim 4. For at least this reason, a *prima facie* case of obviousness cannot be established in connection with this claim.

Claims 2 and 5-6

Claims 2 and 5-6 are believed to be allowable at least by virtue of their dependency from claim 1. For this reason, the Examiner's arguments in connection with these claims are believed to be moot, and so will not be addressed here.

Conclusion

The Applicant believes that the application is now in condition for allowance and respectfully requests so. The Commissioner is authorized to charge any additional fees that may be required or credit overpayment to Deposit Account No. **502447**.

Respectfully submitted,

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